Rec'd PCT/PTO 14 JUN2001

FORM PTO-1390 (REV 5-93)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY DOCKET NO. 107348-00119
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		DATE: June 14, 2001
		U.S. APPLN. NO. (IF KNOWN, SEE 37 C.F.R. 1.5) Not Yet Assigned 09/856502
INTERNATIONAL APPLICATION NO. PCT/JP00/06778	INTERNATIONAL FILING DATE 29 September 2000	PRIORITY DATE CLAIMED 19 October 1999

TITLE OF INVENTION: SKIN OF SEAT FOR VEHICLE

APPLICANT(S) FOR DO/EO/US: Tetsuharu TANAKA (Saitama, Japan); Miyako KOGA (Saitama, Japan); Toshimasa MORI (Shizuoka, Japan); Tomohisa CHIBA (Saitama, Japan)

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371. (THE BASIC FILING FEE IS ATTACHED)

2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.

3. ☒ This express request to begin national examination procedures [35 U.S.C. 371(f)] at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).

4. ☐ A proper demand for International Preliminary Amendment was made by the 19th month from the earliest claimed priority date.

5. ☒ A copy of the International Application as filed [35 U.S.C. 371(c)(2)]
   a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☒ has been transmitted by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).

6. ☒ A translation of the International Application into English [35 U.S.C. 371(c)(2)].

7. ☒ Amendments to the claims of the International Application under PCT Article 19 [35 U.S.C. 371(c)(3)]
   a. ☒ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ have been transmitted by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☐ have not been made and will not be made.

8. ☒ A translation of the amendments to the claims under PCT Article 19 [35 U.S.C. 371(c)(3)].

9. ☐ An oath or declaration of the inventor(s) [35 U.S.C. 371(c)(4)].

10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 [35 U.S.C. 371(c)(5)].

Items 11 - 16 below concern other document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98.

12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 C.F.R. 3.28 and 3.31 is included.

13. ☐ A FIRST preliminary amendment.
    ☐ A SECOND or SUBSEQUENT preliminary amendment.

14. ☐ A substitute specification.

15. ☐ A change of power of attorney and/or address letter.

16. ☒ Other items or information: ☒ Specification as originally filed in English and Japanese; PCT/RO/101 PCT Request in English and Japanese; PCT/ISA/210 in English and Japanese
    Drawings (1 sheet)

U.S. APPLN NO. (IF KNOWN, SEE 37 C.F.R. 1.5) 09/856502 Not Yet Assigned	INTERNATIONAL APPLICATION NO. PCT/JP00/06778	ATTORNEY DOCKET NO. 107348-00119 DATE: June 14, 2001

17. ☒ The following fees are submitted:

Basic National Fee [37 C.F.R. 1.492(a)(1)-(5)]:

Search Report has been prepared by the EPO or JPO.....$860.00
International preliminary examination fee paid to USPTO (37 C.F.R. 1.482).....$690.00
No international preliminary examination fee paid to USPTO (37 C.F.R. 1.482) but international search fee paid to USPTO [37 C.F.R. 1.445(a)(2)].....$710.00
Neither international preliminary examination fee (37 C.F.R. 1.482) or international search fee [37 C.F.R. 1.445(a)(2)] paid to USPTO.....$1,000.00
International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4).....$ 100.00

CALCULATIONS	PTO USE ONLY

ENTER APPROPRIATE BASIC FEE AMOUNT =				$ 860.00	
Surcharge of $130.00 for furnishing the oath or declaration later than ☒ 20 ☐ 30 months from the earliest claimed priority date [37 C.F.R. 1.492(e)].				$ 130.00	
Claims	Number Filed	Number Extra	Rate		
Total Claims	4 - 20 =	0	X $ 18.00	$ 0.00	
Independent Claims	2 - 3 =	0	X $ 80.00	$ 0.00	
Multiple dependent claim(s) (if applicable)			+ $270.00	$ 270.00	
TOTAL OF ABOVE CALCULATIONS =				$ 1,260.00	
Reduction by one-half for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 C.F.R. 1.9, 1.27, 1.28). -				$ 0.00	
SUBTOTAL =				$ 1,260.00	
Processing fee of $130.00 for furnishing the English translation later the ☐ 20 ☐ 30 months from the earliest claimed priority date [37 C.F.R. 1.492(f)]. +				$ 0.00	
TOTAL NATIONAL FEE =				$ 1,260.00	
Fee for recording the enclosed assignment [37 C.F.R. 1.21(h)]. The assignment must be accompanied by an appropriate cover sheet (37 C.F.R. 3.28, 3.31). $40.00 per property +				$ 0.00	
TOTAL FEES ENCLOSED =				$ 1,260.00	
				Amount to be refunded	$
				Charged	$

a. ☒ A check in the amount of $1,260.00 to cover the above fees is enclosed.
b. ☐ Please charge my Deposit Account No. 01-2300 in the amount of $ to cover the above fee. A duplicate copy of this sheet is enclosed.
c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 01-2300.

NOTE: Where an appropriate time limit under 37 C.F.R. 1.494 or 1.495 has not been met, a petition to revive [37 C.F.R. 1.137(a) or (b)] must be filed and granted to restore the application to pending status.

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SPECIFICATION

(including Amendment under Article 19(1))

SKIN OF SEAT FOR VEHICLE

FIELD OF THE INVENTION

The present invention relates to a skin of a seat for a vehicle.

BACKGROUND ART

A black skin of a seat, for example, for a two-wheeled motor vehicle, is conventionally popular from the viewpoint of design. The skin is comprised of a skin body made of a synthetic resin, e.g., polyvinyl chloride composition, and carbon black as a black pigment dispersed in the skin body.

The conventional black skin has the advantage that it is inexpensive and stable in physical properties. However, when the two-wheeled motor vehicle is left to stand under the blazing sun, it is inevitable that the black skin will be heated to a hot state by infrared rays absorbed by the carbon black.

DISCLOSURE OF THE INVENTION

It is an object of the present invention to provide a skin of a seat for a vehicle, which is of the above-described type, and which is not heated to a hot state, even if it is left to stand under the blazing sun.

To achieve the above object, according to the present invention, there is provided a skin of a seat for a vehicle, comprising a skin body made of a synthetic resin, and an infrared-ray reflective pigment dispersed in the skin body.

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With the above arrangement, a rise in temperature of the skin is inhibited by the infrared-ray reflective pigment. Therefore, the skin is not heated into a hot state even under the blazing sun.

To achieve such inhibition of the rise in temperature of the skin, if the amount of synthetic resin mixed to form the skin body is defined as 100 parts, the amount of infrared-ray reflective pigment mixed is set at 0.3 parts or more. In this case, if the amount of infrared-ray reflective pigment mixed is lower than 0.3 parts, the intended purpose cannot be achieved. On the other hand, if the amount of infrared-ray reflective pigment mixed exceeds 10 parts, a disadvantage of a plate-out in a producing step will arise. Therefore, an upper limit of the amount of pigment mixed is set at 10 parts.

When the skin of the seat has a roughened surface having a plurality of recesses and projections, the sense of a human's skin feeling hot becomes duller than that when the skin of the seat has a flat surface. Therefore, the surface of the skin is formed into a roughened surface having a plurality of recesses and projections dispersed therein. In this case, it is desirable that the height of the projections in the recesses and projections is in a range from 0.05 mm (inclusive) to 0.35 mm (inclusive). However, if the height is less than 0.05 mm, the above-described effect cannot be achieved. On the other hand, if the height exceeds 0.35 mm, there arise disadvantages that see-through portions are created, or dusts or the like are

liable to be accumulated in the recesses, particularly when the skin is thin in total thickness. Examples of the skin having such surface include a skin whose surface is formed into a sueded fashion.

In addition, the skin body is made of one of a polyvinyl chloride composition and a foamed polyvinyl chloride composition, for example.

Another embodiment of a skin is of a two-layer structure comprising an upper layer and a lower layer affixed to the upper layer. In this case, the upper layer has an upper layer body made of a synthetic resin, and an infrared-ray reflective pigment dispersed in the upper layer body. The lower layer has a lower layer body made of a synthetic resin, and carbon black dispersed in the lower layer body. The upper layer in such embodiment corresponds to a skin having the above-described single layer structure and hence, various requirements as described above and pertaining to the above-described skin are also applied to the upper layer.

If the skin is formed into the two-layer structure, the upper layer can be thinned, and the amount of the infrared-ray reflective pigment used causing an increase in cost can be reduced.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig.1 is a sectional view of an embodiment of a skin. Fig.2 is a sectional view of another embodiment of a skin.

BEST MODE FOR CARRYING OUT THE INVENTION

Referring to Fig.1, a skin 1 used in a seat of a two-wheeled motor vehicle as a vehicle has a base knitted-fabric 3 affixed to its back with an adhesive layer 2 interposed therebetween. The surface of the skin 1 is formed into a sueded fashion and hence, is a roughened surface having a plurality of recesses 4 and a plurality of projections 5. The height h of the projections 5 is in a range from 0.05 mm (inclusive) to 0.2 mm (inclusive).

The skin 1 includes a skin body 6 made of a polyvinyl chloride composition, and a black infrared-ray reflective pigment 7 dispersed in the skin body 6.

The polyvinyl chloride composition comprises a blend comprising components, which will be described below. The blend is a reinforcing blend intended to protect the infrared-ray reflective pigment. Meanwhile, in the polyvinyl chloride composition, the term "part" means "a part by weight" and likewise hereinafter.

Resin component (polyvinyl chloride)	100 parts
Phthalate plasticizer	72 parts
(wherein phthalate was made using an alcohol having 10 to 14 carbon atoms)	
Phosphate-based plasticizer (TCP)	7 parts
Ba-Zn based stabilizer	3 parts
Amine-based stabilizer	0.4 parts

The black infrared-ray reflective pigment 7 used is Paliogen Black (registered trademark) L0084 made by BASF, Co.,

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and the amount of pigment mixed is set at one part per 100 parts of the polyvinyl chloride.

For comparison, a skin having a flat surface and a conventional structure was selected. This skin has a base knitted-fabric affixed to its back with an adhesive layer interposed therebetween, likewise as described above. A polyvinyl chloride composition for forming the skin comprises a usual blend having the following components:

Resin component (polyvinyl chloride)	100 parts
Phthalate plasticizer (DOP)	80 parts
Ba-Zn based stabilizer	3 parts

The pigment used is carbon black. The amount of carbon black mixed is set at 0.5 parts per 100 parts of the polyvinyl chloride.

The skin 1 according to the embodiment and the skin in the comparative example were subjected to the following heating test: Using an incandescent lamp, light was applied to the surface of each of the skins from a location corresponding to a height of 180 mm, and the temperature of the surface was measured by a thermo-viewer. When the temperature of the surface in the comparative example reached 90°C, the temperature of the surface in the embodiment was measured, and the result showed 59.7°C. Under the blazing sun showing an open-air temperature of 37°C, the highest temperature of the surface in the comparative example reached 78.9°C, but that in the embodiment was 60.3°C. In any case, it was found that when the

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experimenter touched the surfaces in the embodiment with his or her hand, he or she did not feel hot, but when he or she touched the surfaces in the comparative example with his or her hand, he or she felt very hot. From the foregoing, an effect provided by the infrared-ray reflective pigment 7 was confirmed.

Fig.2 shows another embodiment. In this embodiment, a skin 1 comprises an upper layer 8, and a lower layer 9 affixed to the upper layer 8 by heat. A base knitted-fabric 3 is affixed to a back of the lower layer 9 with an adhesive layer 2 interposed therebetween. The upper layer 8 has an upper layer body 11 made of a synthetic resin, and an infrared-ray reflective pigment 7 dispersed in the upper layer body 11. The lower layer 9 has a lower layer body 12 made of a synthetic resin, and carbon black 13 dispersed in the lower layer body 12. The particular structure of the upper layer 8 is, for example, the same as that of the skin 1 in the previous embodiment shown in Fig.1, and the particular structure of the lower layer 9 is, for example, the same as that of the skin in the above-described comparative example.

The polyvinyl chloride may be a foamed product, and woolly-nylon fabric or the like may be used as a base fabric. Further, an infrared reflective pigment may be dispersed in each of the upper and lower layers to produce a thick skin.

INDUSTRIAL APPLICABILITY

The skin of the seat for vehicle according to the present invention is applicable to a two-wheeled motor vehicle and

further to another vehicle, e.g., a bus, a truck or an automobile.

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WHAT IS CLAIMED IS

1. (Amended) A skin of a seat for a vehicle, comprising a skin body (1) made of a synthetic resin, and an infrared-ray reflective pigment (7) dispersed in said skin body (1), wherein when the amount of synthetic resin mixed for forming the skin body (1) is defined as 100 parts, the amount of infrared-ray reflective pigment (7) mixed is in a range from 0.3 parts (inclusive) to 10 parts (inclusive), and the surface of said skin is a roughened surface having pluralities of recesses and projections (4, 5), and the height (h) of the projections (5) is of 0.05 mm or more.

2. (Deleted)

3. (Deleted)

4. (Deleted)

5. (Deleted)

6. (Amended) A skin of a seat for a vehicle, comprising an upper layer (8) and a lower layer (9) affixed to said upper layer (8), said upper layer (8) having an upper layer body (11) made of a synthetic resin, and an infrared-ray reflective pigment (7) dispersed in said upper layer body (11), said lower layer (9) being affixed to a base knitted-fabric (3) and having a lower layer body (12) made of a synthetic resin, and carbon black (13) dispersed in said lower layer body (12), wherein when the amount of synthetic resin mixed for forming said upper layer body (11) is defined as 100 parts, the amount of infrared-ray reflective

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pigment (7) is in a range from 0.3 parts (inclusive) to 10 parts (inclusive), and the surface of said upper layer (8) is a roughened surface having pluralities of recesses and projections (4, 5), and the height (h) of the projections (5) is of 0.05 mm or more.

7. (Deleted)

8. (Deleted)

9. (Deleted)

10. (Deleted)

11. (Added) A skin of a seat for a vehicle according to claim 1 or 6, wherein the height (h) of the plurality of projections (5) is of 0.35 mm or less.

ABSTRACT OF THE DISCLOSURE

A skin of a seat for a vehicle includes a skin body made of a synthetic resin, and an infrared-ray reflective pigment dispersed in the skin body. Thus, the skin of the seat is not heated to a hot state, even if it is left to stand under the blazing sun.

FIG.1

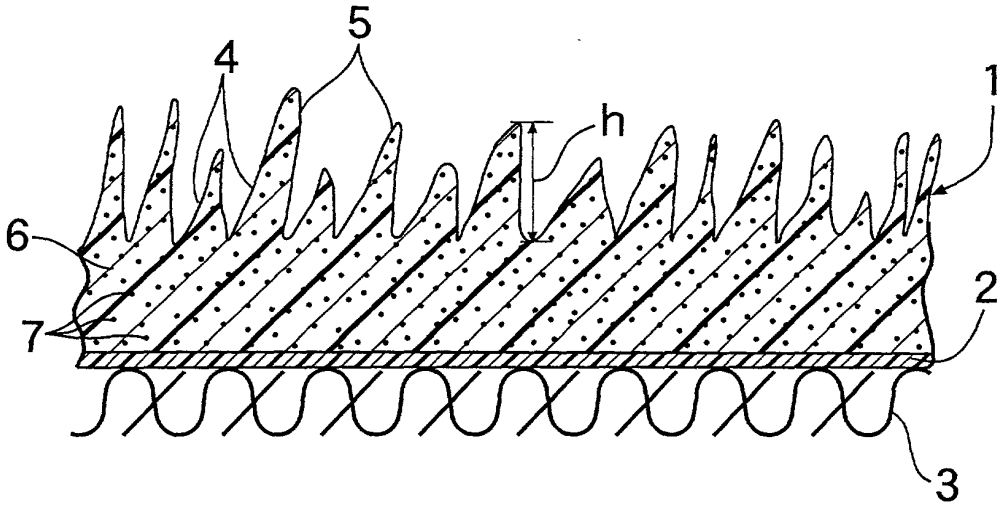
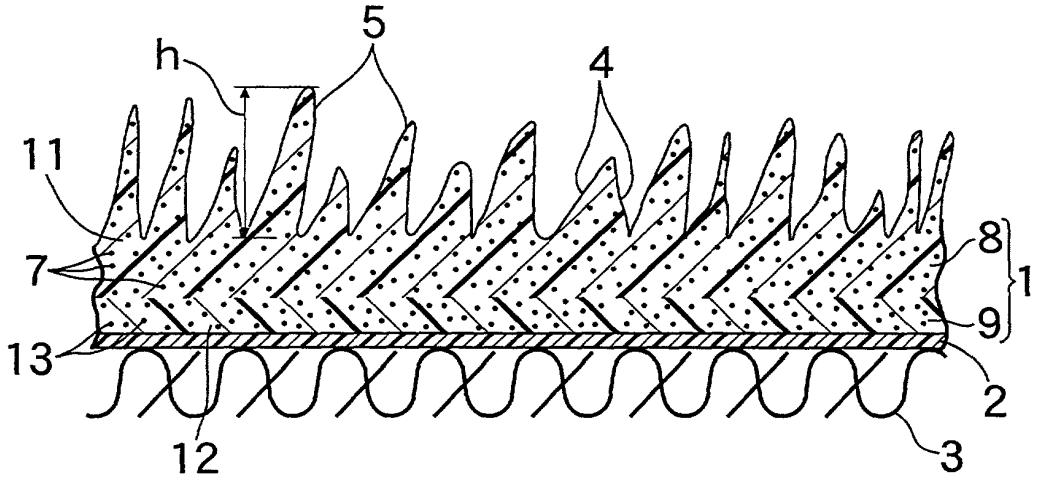


FIG.2



A, F, K, P & K Docket No. 107348-00119

ARENT FOX KINTNER PLOTKIN & KAHN
Nikaido, Marmelstein, Murray & Oram Intellectual Property Group

Declaration For U.S. Patent Application

As a below named inventor, I hereby declare that:
My residence, post office address and citizenship are as stated below my name.
I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention **entitled**

(Insert Title) SKIN OF SEAT FOR VEHICLE

the specification of which is attached hereto unless the following box is checked:

☒ was filed on September 29, 2000 as PCT International Application Number PCT/JP00/06778
and was amended on March 28, 2001 **and/or**
was filed on June 14, 2001 as United States Application Number 09/856,502
and was amended on _____.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claim(s), as amended by any amendment referred to above.
I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. §1.56.
I hereby claim foreign priority benefits under 35 U.S.C. §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT International application which designates at least one country other than the United States, listed below and have also identified below any foreign application(s) for patent or inventor's certificate or PCT International Application having a filing date before that of the application for which priority is claimed:

(List prior foreign applications)	(Number)	(Country)	(Day/Month/Year Filed)	Priority Claimed
	11-297441	Japan	19 / October / 1999	☒ Yes ☐ No
				☐ Yes ☐ No
				☐ Yes ☐ No

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below.

(Application Number)	(Filing Date)

☐ See attached list for additional prior foreign or provisional applications.

I hereby claim the benefit under 35 U.S.C. §120 of any United States application(s) or §365(c) of any PCT International application(s) designating the United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior application(s) (U.S. or PCT) in the manner provided by the first paragraph of 35 U.S.C. §112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. §1.56 which became available between the filing date of the prior application(s) and the national or PCT International filing date of this application:

(List prior U.S. Applications or PCT International applications designating the U.S.)	(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

And I hereby appoint the firm of Arent Fox, Customer Number 004372 including as principal attorneys: David T. Nikaido, Reg. No. 22,663; Charles M. Marmelstein, Reg. No. 25,895; George E. Oram, Jr., Reg. No. 27,931; Robert B. Murray, Reg. No. 22,980; 32,131; Douglas H. Goldhush, Reg. No. 33,125; Monica Chin Kitts, Reg. No. 36,105; Richard J. Berman, Reg. No. 39,107; King L. Wong, Reg. No. 37,500; James A. Poulos, III, Reg. No. 31,714; Murat Ozgu, Reg. No. 44,275; Robert K. Carpenter, Reg. No. 34,794, Gregory B. Kang, Reg. No. 45,273, Rustan J. Hill, Reg. No. 37,351, Carl Schaukowitch, Reg. No. 29,211, Kevin F. Turner, Reg. No. 43,437 and Hans J. Crosby, Reg. No. 44,634.

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The undersigned hereby authorizes the U.S. attorneys named herein to accept and follow instructions from the undersigned's assignee, if any, and/or, if the undersigned is not a resident of the United States, the undersigned's domestic attorney, patent attorney or patent agent, as to any action to be take in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorneys and the undersigned. In the event of a change in the person(s) from whom instructions may be taken, the U.S. attorneys named herein will be so notified by the undersigned.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Inventor's signature Tomohisa Chiba August 27, 2001
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